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5. Access is not enough: A look at what Better Evidence for Training Champions are doing to promote the use and uptake of evidence-based digital tools in Africa– **Grace A. Ajuwon, Aminu Musa Umar and Julie Rosenberg**

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Abstract

Introduction
Around the globe, more than two million health care providers are consulting the evidence-based clinical content on UpToDate for answers to their clinical questions. The digital tool is used more than 1.7 million times per day. It's also the only resource of its kind to be associated with health improved outcomes.

For many years, UpToDate was out of reach for those with limited resources due to the high cost. Now, a program called Better Evidence is making it available in about 60 African medical schools for free. Providing free access to the tool is not enough, there is the need to promote registration and usage. Without encouragement, training, and support, the free access goes unused. Implementation efforts are essential.

Objective
The main objective of the study is to examine the Better Evidence for Training Champion's role in promoting uptake, adoption, and use of UpToDate and other clinical decision support tools in partner institutions (medical schools) across Africa.

Methods
Champions have implemented many innovative programs using different strategies. These includes launching communication campaigns (WhatsApp, Telegraph, Email, posters and flyers), offering training, engaging faculty, appointing student ambassadors, attending orientation for new students or other events where potential users are congregating, and more to promote uptake and use of clinical decision support tools in their institutions as well as affiliate sites.

Results
Over time, usage and tool registration have increased at every single institution. Schools that recently joined the program usually see <10% of eligible registrants engage with the tools. Schools participating in the program for the longest have the highest registration and usage rates. At Cohort 1 schools, more than 67% of eligible users were registered after three years, with registration rates slightly lower for each consecutive cohort.

Conclusion
Local advocacy and innovation are essential for promoting the use of new digital technologies and informatics tools, even when such tools are known to be beneficial. It takes time for people to adopt new tools.

Introduction

Evidence-based Medicine (EBM) is a process of lifelong, self-directed learning in which caring for patients creates the need for clinically important information about a diagnosis, prognosis, therapy, and other clinical and health care issues (Masic et al., 2008). Sackett and colleagues (1996) describe EBM "as the conscientious, explicit, and judicious use of current best available research evidence in making decisions about the care of individual patients". Evidence-based medicine (EBM) is about using research evidence to inform care of individual patients.

The advent of the Internet and the exponential growth of the biomedical literature has left clinicians suffering from information overload; more than 250,000 clinical studies are published each year. Clinicians lack sufficient time to wade through volumes of health literature. Unanswered questions, medical errors, and adverse events necessitated the development of clinical decision-support tools (Moore & Loper, 2011). Haynes and Wilczynski (2010), defined CDS tools as "information technology-based systems designed to improve clinical decision making." Clinical decision support tools are interactive (Vardell & Moore, 2012). They provide information or data, usually at the point of care, to guide clinical decisions and improve health care delivery (Goodman et al., 2023) by enhancing medical decisions with targeted clinical knowledge, patient information, and other health information at the point of need (Osheroff et al., 2012); they aid in the avoidance of diagnostic errors and reduce costs of treatment (Liberati et al., 2017).

Clinical decision support systems are also known as digital decision support tools (DDSTs). Some DDSTs are designed for a specific speciality or purpose, and others address a wide range of topics. Those that connect the clinician to the latest clinical evidence are considered evidence-based clinical decision support tools. With such tools, clinicians can search at the patient's bedside instead of going to the library to look up clinical information. Examples of evidence-based CDS tools that bring the most recent evidence to the clinician at the point of care include UpToDate, MSD

Manuals, DynaMed, VisualDx, and Clinical Key (Rosenberg, Miller, et al., 2022). They allow clinicians to make faster and better decisions in the management of their patients. The importance of DDSTs in effective, high-quality, and equitable healthcare outcomes has been well acknowledged by the World Health Organization (WHO, 2019).

Previous studies (Bonis, 2008; Isaac, 2012) have examined evidence-based digital support tools and their impact on patient outcomes as well as (Kawamoto, 2005; Hardenbol et al., 2018; Cho et al., 2022) the usability and general performance of evidence-based decision support tools. Bonis et al., (2008), noted that hospitals with access to UpToDate were reported to have better patient care quality and shorter lengths of stay.

UpToDate: A Digital Decision Support Tool

UpToDate is one of the most popular digital clinical decision support tools. It covers 25 specialities and is used by over two million healthcare providers in 190 countries, with more than 1.7 million consultations per day (UpToDate, 2020). One study showed that 37% of the time clinicians look something up in UpToDate, they change their decision (Phua et al., 2012). Hospitals that offer UpToDate were found to have shorter lengths of stay, higher quality care, and lower mortality rates (Bonis et al., 2008; Isaac et al., 2012). In settings where clinicians are seeing a wide range of conditions and have minimal access to specialists for consultation, it is likely that the tool leads to even greater improvement in health outcomes.

Statement of the Problem

UpToDate is more than 30 years old, evolving over the years from arriving by mail on computer disks to being downloadable and web-based. Despite increased usage of UpToDate and other digital clinical decision support tools over the years, usage has not been universal. The cost of the tools and several other barriers to access have meant that use has been much lower in developing parts of the world, where they could have the largest impact, given the disease burden and human resource shortage.

Access to evidence-based digital tools is possible in today's information age, but having access is insufficient since access does not necessarily lead to use. The Better Evidence for Training Program – a program run from the USA at Ariadne Labs, a joint centre for health systems innovation at Brigham and Women's Hospital and the Harvard T.H. Chan School of Public Health –facilitates access to evidence-based digital tools such as UpToDate and has on boarded "Champions" who have taken on the mission of encouraging the use and adoption of these technologies in medical schools in universities across Africa. The Champions consist of health librarians, clinicians, IT professionals among others. They develop and implement strategies for uptake of UpToDate in medical schools in Africa. While a wealth of literature could be found on evidenced-based digital tools, little research was conducted on maximizing uptake and usage of evidenced-based digital tools, especially within the African continent. This research set out to fill in this existing gap in the literature.

The Objective of the Study

The main objective of the study is to examine the Better Evidence for Training Champions role in promoting uptake, adoption, and use of UpToDate clinical decision support tool in partner institutions (medical schools) across Africa.

Review of Related Literature

Numerous factors affect the uptake, adoption, and usage of evidence-based digital tools; therefore, promoting their uptake and usage has become imperative (Rosenberg et al., 2022; Kinengyere et al., 2021). Several promotion strategies have been identified in the literature to ensure the use and uptake of digital tools. Kinengyere et al., (2021) found that the use of the tools is variable and suggest capacity building and promotion can contribute toward increasing the consistent use of evidence-based digital tools.

Hwang and colleagues (2020), categorize strategies for promoting Institutional Digital Repositories in Texas into active and passive outreach practices. To buttress this further, Atkinson et al., (2017), conducted a study to discover mental health professionals' attitudes towards evidence-based practice and methods used to keep up-to-date with research, promote the use of a digital evidence-based platform known

as the National Elf Service (NES), assess its use, and explore its potential to impact clinical practice. A series of presentations by the NES Director was followed by the introduction of the NES subscription to adult mental health community teams and two early intervention services across Oxford and Buckinghamshire. Research assistants were employed to increase staff awareness and engagement in research by promoting the NES through an intervention. The study found that the NES increased awareness and knowledge about evidence-based digital tools, which has led to greater demand and utilization across various sectors. However, most Oxford Health National Health Service Foundation Trust staff members were still unaware of the NES resource at follow-up, suggesting that emails were not effective in advertising the service. Future possibilities include advertising within team bases and having team managers promote the resource.

Also, George, et al., (2022), analyzed the behaviors and characteristics of champions who successfully promoted evidence-based interventions in the healthcare sector. Using a mixed-methods, cross-sectional triangulation design with a convergence model. The study found that champions exhibited characteristics that facilitated trust and motivation among their colleagues. These included intrinsic motivation, persistence, enthusiasm, and effective communication. However, champions were more likely to underrate their skills and abilities to instigate change than their colleagues. The study highlights the importance of understanding the unique characteristics and behaviors that make champions effective in facilitating evidence-based interventions.

In another related study, Lehane et al. (2018), explore the challenges and enablers of evidence-based practice (EBP) and associated technologies. The study used a qualitative research methodology to achieve its objectives. The findings of the study indicated that "EBP curriculum considerations", "Teaching EBP," and "Stakeholder engagement in EBP education" were the major bottlenecks to proper EBP usage and associated technologies. These categories informed the overarching theme of "Improving healthcare through enhanced teaching and application of EBP". The study indicated that despite positive opinions regarding EBP and widespread acknowledgement of its importance in providing quality and safe healthcare, reliable translation at the point of care remains elusive.

Valtis et al., (2016) conducted a study on the use of UpToDate evidence-based digital decision support tool by clinicians in resource-constrained settings. Data was collected via Google Forms from applicants requesting access to UpToDate between 2009 and 2015. The findings indicated that increased awareness is central to usage and uptake promotion. For example, the findings revealed that "growth picked up significantly after 2013, potentially due to growing awareness". The findings also indicated that removing the cost barrier to accessing UpToDate has led to frequent usage by low and middle-income countries. This study was foundational to the findings of Valtis et al., (2018), who reported that the removal of access costs among medical students and faculty generated uptake and usage of UpToDate by senior medical students. It also helped facilitate their continued usage after graduation.

Rosenberg and colleagues (2022) analyzed factors affecting clinicians' uptake and usage of UpToDate specifically, barriers and enablers of facilitating access to digital evidence-based tools. The findings of the study indicated that some of the challenges faced by the respondents were integrating the digital tool into practice, with clinicians who faced difficulties being only half as likely to log on. Also, the study indicated that the perceived utility of the tool mattered for uptake, with a percentage reporting an improved ability to find answers. Also, the study suggested that a positive professional context facilitated tool use.

Program Approach

The Better Evidence program aims to bridge the gap in access and use of clinical decision support tools. Better Evidence began facilitating access to UpToDate to clinicians in 2009 and after a decade saw that it was important to train clinicians to use the tool in medical schools to promote usage (Valtis et al., 2018). The program began to facilitate free access to UpToDate in African medical schools by turning on access through the IP addresses of schools and their associated training facilities. However, again, the program saw that access alone was not sufficient for utilization and uptake. Partnering with local advocates would be essential for shifting the culture to foster acceptance and integration of clinical decision support tools into daily practices.

Better Evidence for Training Champions

Starting in 2020, each school appointed up to two champions, including librarians, clinicians, and ICT professionals, to promote the use of free, digital evidence-based tools in their respective universities and affiliated training institutions.

As of July 2023, 71 champions (including 23 women and 35 librarians) were working across 43 schools in 15 countries. The champions are raising awareness about the benefits of evidence-based tools, dispelling misconceptions, and addressing concerns related to technology use. Champions partner with the Better Evidence team, providing feedback to the team and working to develop strategies and implement ideas.

Across universities, Champions have implemented many innovative programs to raise awareness and encourage the uptake of evidence-based digital tools. We launch targeted communication campaigns to disseminate information about the availability and benefits of these tools. These include the use of WhatsApp, Telegram, email, and newsletters as well as hanging printed posters or flyers around campus. Over the last year, more than 80% of Champions have displayed posters on their university campus and more than a third have hung posters at affiliated sites.

Additionally, Champions have been coordinating and conducting training sessions to familiarize users with UpToDate. Training sessions aim to give users the necessary knowledge and skills to make the most out of this tool. Champions either set up sessions or try to ensure that they can get time slot during existing faculty meetings or student orientations. Champions engaged in organizing training to promote uptake and use of UpToDate digital tools at departmental meetings, Faculty governance councils, journal clubs, and meetings with university administration and service units. Nearly 50% held trainings at affiliated sites. By providing hands-on training and support, Champions can troubleshoot any technical issues on site and empower colleagues to integrate evidence-based tools seamlessly into their daily workflows. Some universities have appointed student ambassadors and distributed the work of Champions or Advocates even more broadly.

By leveraging various channels, we are effectively building awareness of both the availability and utility of evidence-based digital tools over time.

Over time, Champions have developed promotional strategies and preferences for direct and personal communication with faculty members, clinicians, residents, and students. The rising uptake and usage show the commitment and dedication of Champions towards promoting evidence-based digital tools. Champions used face-to-face outreach to market and promote the use of UpToDate digital tool to the general user community in their various universities in Africa.

Furthermore, the experience gained by Champions over time becomes invaluable as we share the ideas that work amongst ourselves and later train newly nominated Champions from medical schools that join the program in effectively advocating for the use of UpToDate in their institutions. More than 50% attend the live webinars on Zoom, with the remainder watching asynchronously, and more than 80% have posted in the online community of practice. The knowledge transfer ensures the continued evolution and growth of the program and the increasing awareness of evidence-based digital tools across universities and training programs.

Impact

Registration rates among eligible users by cohort over time

Over time, usage and tool registration have increased at every single participating institution (see **Table 1** for percent of eligible users registered within each cohort over time). Schools that recently joined the program usually see <10% of eligible registrants engage with the tools in the first month. Schools that have been participating in the program for the longest have the highest registration and usage rates. There is a big range in registration rates among schools, ranging from 4% to 232%. Because the rate is calculated using the total number of students, faculty, and interns as reported by schools as the denominator, registration rates may exceed 100%; the tool is available to all clinicians working in affiliated training facilities.

Table 1 Registration rates among eligible users by cohort over time

	2019-2020**	2020-2021	2021-2022	2022-2023
Cohort 1	31.16 %	57.99 %	94.67 %	133.24* %
Cohort 2	--	51.85 %	81.45 %	109.65 %
Cohort 3	--	--	41.78 %	70.13%
Cohort 4	--	--	--	25.83 %

*Some percentages exceed 100% because there are more people registered than the number of enrolled students, faculty, interns as reported by universities.

**Cumulative registration data is pulled in May/June of the second year shown.

Usage rates by cohort over time

While registration rates relate to the number of people who sign up for access to the tool, usage rates show how much they actually use it and search for information. Based on the usage of the UpToDate evidence-based digital tool, the findings show some discrepancy in use between cohorts. The schools that have had access the longest generally have higher levels of use. However, in the first year of the program (2019-2020), there were no Champions, and usage rates were lower. In the second year (Cohort 2), schools were invited to appoint Champions and usage increased. Cohort 3 schools were required to appoint Champions. Cohort 3 was slightly bigger than the previous two cohorts and saw the highest usage relatively quickly. There may also be an impact seen from the COVID-19 pandemic during which many schools closed for an extended period, limiting the ability to register and/or use the tool. Most schools see a dip in usage around the winter holidays each year.
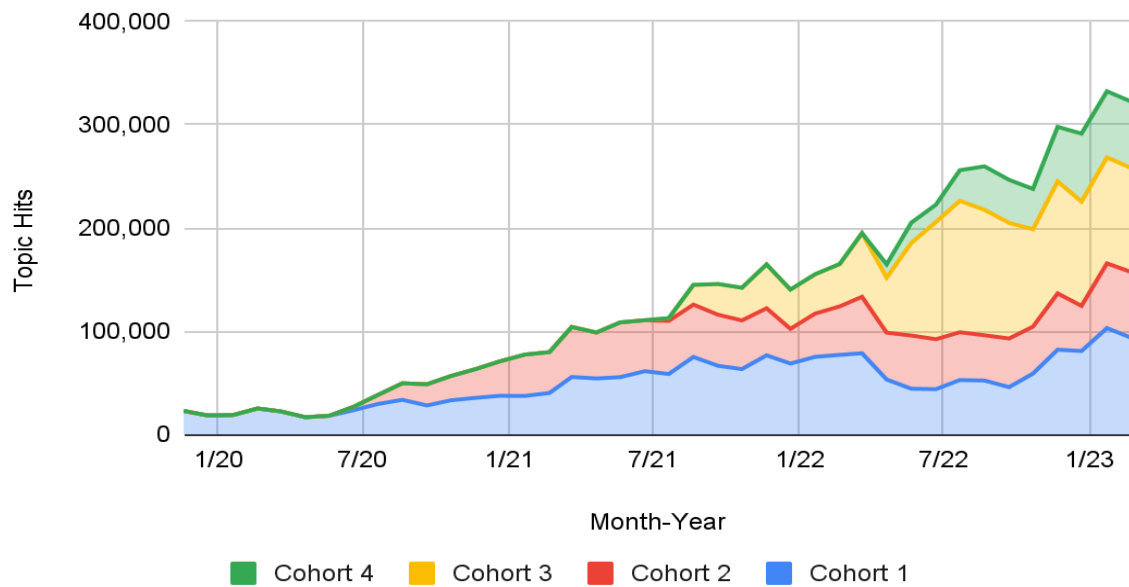
UpToDate Usage by School Cohort

Figure 1: Registration rates among eligible users by cohort over time

Discussion of Findings

Analysis of findings from the study indicated that promoting evidence-based digital tools is an integral part of the role of Better Evidence for Training champions. Regarding the success stories over uptake and usage, Better Evidence for Training champions have used several strategies to promote UpToDate evidence-based digital tool usage among faculty members, clinicians, residents, and students. For example, the findings of this study showed a trajectory increase in older cohorts. There is no surprise here because the older champions have been persuading and engaging people for a long time, which has undoubtedly led to an increase in uptake and usage.

UpToDate Champions also used fliers, personal letters, mass e-mails, handbills, leaflets, brochures, and notices placed on notice boards, social media, WhatsApp, institutional websites, and other media, which according to Schlangen (2015) and Thompson et al., (2016), are considered an effective way to market and promote uptake and usage of the digital tool in general. Therefore, the success stories recorded by the Champions are aligned with previous research findings. Through their constant engagement, commitment, communication, and dedication, Better Evidence for Training Champions have established networks of users across the entire African continent.

Conclusion

In conclusion, access alone is not enough for the optimal use of evidence-based digital tools. By developing collaborative alliances and champions, Better Evidence for Training initiatives are encouraging the usage and uptake of UpToDate evidence-based digital tools. Through raising awareness, understanding, and use, Better Evidence for Training Champions are impacting clinicians in different countries to make better decisions and achieve better outcomes. Through its ongoing work, Better Evidence for Training is paving the way for a future where evidence-based digital technologies will be successfully applied in practice, enhancing both individuals' lives and society's well-being within the African continent and beyond.

While reducing cost barriers is an important step toward increasing access and uptake of evidence-based digital tools in practice, it is not sufficient. Local advocacy and innovation are essential for promoting new digital tools, even when such tools are known to be beneficial. It takes time for people to adopt new tools. There is a lot of interest in UpToDate among members of African medical schools who are aware of access. Lowering the cost barrier and conducting tool promotion and training can, therefore, address the currently low tool uptake in the continent. Better Evidence's approach, through the efforts of local champions, aims to increase engagement and use of clinical decision-making tools, helping to foster a culture of evidence-based practice in African medical schools.

Acknowledgements

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